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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,650	07/27/2004	Shawn Midlam-Mohler	81102641 / FMC 1778 PUS	4649

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EXAMINER	
EDWARDS, LOREN C	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/710,650	MIDLAM-MOHLER, SHAWN	
	Examiner	Art Unit	
	Loren C. Edwards	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The applicants' information disclosure statement (IDS) submitted on 4/5/2004 is acknowledged. The examiner has considered the references listed therein.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4, 12-13, 15 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Shiraishi et al. (U.S. Pat. App. Pub. 2001/0025621). Shiraishi discloses a system and a method that controls an oxygen displacement valve such that at least a portion of exhaust gas generated by the ICE is directed into an intake air flow of the ICE when an engine speed is below a first predetermined level (Fig. 19).

3. In regards to claims 2 and 13, Shiraishi discloses a method and a device for the control of the ODV during the startup of an engine. The controlling of NOx emissions upon the start of any ICE is a known problem due to the non-activation of the NOx catalyst, accordingly, applicants claim of "hybrid electric vehicle" would have been obvious since the ICE is continually started and stopped during use.

4. In regards to claims 4 and 15, Shiraishi discloses the closing of the engine throttle during the control of the ODV (Page 7, Paragraph 66).

5. Claims 1, 3, 12, and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Aoyama (U.S. Pat. No. 4,149,500). Aoyama discloses a system and a method that controls an oxygen displacement valve such that at least a portion of exhaust gas generated by the ICE is directed into an intake air flow of the ICE when an engine speed is below a first predetermined level (Col. 6, line 67- Col. 7, line 31). Note, "it is not necessary to maintain the same EGR recirculation at high RPM." (Col. 7, lines 6-8) i.e. closed at a predetermined RPM.

6. In regards to claims 3 and 14, Aoyama discloses a system and method described by claims 1 and 12 and also that controls the ODV valve during deceleration of a conventional ICE engine (Col. 9, Lines 33-67).

7. Claims 1, 5-6, 12, 16, and 18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nishiyama et al. (U.S. Pat. No. 6,681,564). Nishiyama discloses a system and a method that controls an oxygen displacement valve such that at least a portion of the exhaust gas generated by the ICE is directed into an intake air flow of the ICE when an engine speed is below a first predetermined level (Fig. 8, step 201 and 208).

8. In regards to claims 5 and 16, Nishiyama further discloses the device and method described in claim 1 further comprising providing a rich air to fuel ratio to the ICE (Fig. 8, step 211).

9. In regards to claims 6 and 18, Nishiyama further discloses the device and method described in 5/1 and 16/12 and also discloses a further step which is capable of stopping delivery of fuel to the engine (Fig. 8, No. 214; Col. 10, lines 46-59).

10. Claims 1, 7, 11-12, 19, and 22 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kaneko (U.S. Pat. No. 6,839,621). Kaneko discloses a method and a device for controlling the exhaust emissions of an internal combustion engine comprising of determining engine speed and controlling an oxygen displacement valve (Col. 4, lines 28-34).

11. In regards to claims 7, 11, 19, and 22, Kaneko further discloses the ability of this system and method to close the intake and EGR valve when stopping the engine, and then only opens the intake valve when the engine is restarted. (Col. 4, lines 45-56).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko in view of Chivilo' et al. (U.S. Pat. No. 4,312,310). Kaneko discloses the device

of claim 7/1 and 19/12 but does not disclose a device that spins the engine up to starting speed. Chivilo' teaches an emissions prevention control system that stops engine fuel intake during idle conditions and continues to spin the engine with an auxiliary motor to allow subsequent fast start-up (Col. 4, lines 9-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the auxiliary powered engine rotation of Chivilo' on the Kaneko emission controlling device for the advantage of a fast start-up.

15. Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko as applied to claims 8 and 20 above, and further in view of Cook (U.S. Pat. No. 3,709,201). The modified Kaneko discloses the device as described above but does not disclose the device that provides a rich air to fuel ratio during the start up of the engine. Cook teaches a low emission internal combustion engine and method and that most engines are provided with a rich mixture at the start-up times (Col. 5, lines 63-66). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the rich period during engine start up of the Cook engine in the Kaneko emission controlling device in order to quickly warm the engine up in order for the complete combustion of the fuel.

16. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko as applied to claim 9 above, and further in view of King (U.S. Pat. No. 3,935,850). The modified Kaneko discloses the device as described above but fails to specifically disclose that the system utilizes an evaporative control valve to provide a portion of fuel to turn the air to fuel ratio of the charge to rich. King teaches a vapor regulating valve

that directs the vapor from the fuel tank to the intake (Abstract). It would have been obvious to one havening ordinary skill in the art at the time the invention was made to utilize the vapor regulating valve of King in the Kaneko emission controlling device to provide a portion of the fuel required to make a rich charge inexpensively and reliably.

17. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama as applied to claim 16 above, and further in view of King. The modified Nishiyama discloses the device as described above but fails to specifically disclose that the system utilizes an evaporative control valve to provide a portion of fuel to turn the air to fuel ratio of the charge to rich. King teaches a vapor regulating valve that directs the vapor from the fuel tank to the intake (Abstract). It would have been obvious to one havening ordinary skill in the art at the time the invention was made to utilize the vapor regulating valve of King in the Kaneko emission controlling device to provide a portion of the fuel required to make a rich charge inexpensively and reliably.

18. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi in view of Megli et al. (U.S. Pat. App. No. 2005/031618A1). Shiraishi discloses a system and a method that controls an oxygen displacement valve such that at least a portion of exhaust gas generated by the ICE is directed into an intake air flow of the ICE when an engine speed is below a first predetermined level (Fig. 19). Shiraishi fails to disclose the use of variable valves to allow a portion of the exhaust gas to be directed to the intake air flow. Megli teaches an internal combustion engine with electromagnetic valve actuation that is able to leave exhaust ports closed while the intake valves open forcing gas in to the intake (Page 6, paragraph 68). It would have

been obvious to one having ordinary skill in the art at the time the invention was made to utilize the valve operation techniques of Megli in the Shiraishi engine starting method since the EGR circuit would be interior to the engine and would not involve all the hardware necessary for an external EGR.

19. In regards to Claim 24, Kaneko discloses the EGR branch being closed during the start up period of an ICE such that no exhaust gas is permitted to enter the intake during this time. Kaneko fails to disclose the use of variable valves to accomplish this. Megli teaches the ability to use variable valves in such a way that exhaust gasses would be forced in to the intake through the intake valves (Page 6, paragraph 68). For the reason set forth above it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the variable valve techniques of Megli in the Kaneko start-stop control apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Loren C. Edwards whose telephone number is (703) 272-2765. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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